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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/228,866	01/12/99	RUOSLAHTI E	P-LJ3430

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HM12/0529

EXAMINER	
TURNER, S	
ART UNIT	**PAPER NUMBER**
1647	17

DATE MAILED: 05/29/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09/228,866	Ruoslahti E
Examiner	**Art Unit**
Sharon L. Turn r, Ph.D.	1647

-- The MAILING DATE of this communication app ars on th cov r sheet with th c rrespond nc address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 2-26-01

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 13-41 is/are pending in the applica

4a) Of the above, claim(s) 13, 21-23, and 25-27 is/are withdrawn from considera

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 14-20, 24, and 28-41 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirem

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

19) ☐ Notice of Informal Patent Application (PTO-152)

20) ☐ Other:

Response to Amendment

1. The amendment filed 2-26-01 has been entered into the record and has been fully considered. Claims 13-41 are pending.

2. As set forth in the Final Action of 2-16-00, newly submitted claims 13, 21-23, and 25-27, are directed to an invention that is independent or distinct from the invention originally claimed.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 13, 21-23 and 25-27 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

3. Applicants request for rejoinder has been considered. However, claims 13, 21-23 and 25-27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant affirmed the election in Paper No. 8, filed 11-29-99.

4. As a result of applicants amendment, all rejections not reiterated herein have been withdrawn by the examiner.

Claim Rejections - 35 USC § 112

5. Claims 14-15, 17-20, 24 and 28-41 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the selected small peptide of SEQ ID NO:3 which appears to "selectively home" to brain rather than kidney, for example as exemplified at p. 40, lines 20-21, does not reasonably provide enablement for selective brain homing of any other

peptide sequence. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Applicants argue in response to the previous rejection of record that the exemplifications of applicants peptides are as set forth in fusion peptides with the gene III protein in the vector fuse 5, see in particular p. 22, line 20-p.23, line 4 and Example I, p. 31-32, and that thus one of skill in the art could determine without undue experimentation the relevant peptides capable of selectively homing as exemplified with red blood cells at p. 40, lines 20-21. Applicants refer to Table I and p. 35-37 for other particular peptide embodiments.

Applicants arguments filed 2-26-01 have been fully considered but are not persuasive because the arguments indicate that the enabled invention is not that which is specifically claimed. The arguments indicate that the isolated peptides which selectively home are gIII protein fusions within vector fuse 5 as previously published, see in particular Smith & Scott Meth. Enzymol., 217:228-257 and Koivunen et al., Cell Biol., 124:373-80, 1994 and as disclosed at p. 22-23 of the specification. Thus, the claims as drawn to comprising peptides do not appear to be enable other than for the gIII fusions proteins which are not the subject of the claimed invention. It is reiterated that the skilled artisan cannot predict those peptides capable of selectively homing, without further experimentation and that the standard for an enabling disclosure is not the ability to make and test for those peptides which would selectively home. Skolnick et al., in particular teaches the unpredictable nature of predicting peptide function based

on divergent structure, Trends in Biotech., 18(1):34-39, 2000. Further, the exemplification of selective homing of the shorter peptides "consisting of" which are not gIII fusions is limited to single SEQ ID NO:3. No other exemplary peptide is disclosed to selectively home to any organ in comparison to any other organ. The single species as it differs in structure can not be extrapolated to provide enablement for the alternative genus of encompassed molecules. The isolation of only very few peptides as exemplified in Tables I and II from the innumerable peptides comprised in the phage library indicate the unpredictably in determining those peptides which home to brain in reference to any other organ. Thus, for the aforementioned reasons the scope of enablement is not commensurate with the scope of the claims.

It is noted that the assertion that a peptide has at least 2-fold greater specific binding to brain is insufficient to establish that a peptide homes to brain. Further, such are limitations which are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Only SEQ ID NO:3 is exemplified as localizing to brain in 2 fold greater abundance than to kidney. Only SEQ ID NO:3 is exemplified as homing red blood cells to brain in preference to kidney.

The peptides have been measured with respect to a single organ other than brain (kidney). "Selective homing" indicates that the peptide is more abundant in that organ than any other control organ. As no other organs have been tested, the skilled artisan would have reason to doubt that the peptide selectively homed to brain in the absence of data showing that following

administration, the peptides selectively homed to brain over any other control organ. Thus, the scope of enablement is not commensurate with the scope of the claims, in particular with respect to the recited formulas of untested peptide sequences and sequences comprising certain SEQ ID residues. One of skill in the art would be required to perform further undue experimentation to establish that the claimed peptides selectively homed to any particular organ in comparison to a second reference organ. Such reference is required such that the skilled artisan can use the claimed peptides for the purpose of selectively homing a label or red blood cell to any particular organ.

Thus, as the experimental procedures utilized result in the identification of peptide sequences which are unpredictable in nature other than by experimental isolation and testing for any identified reference organ, the skilled artisan is forced to perform further undue experimentation to make and use the claimed invention.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 14-20, 24, and 28-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith & Scott Meth. Enzymol., 217:228-257 and Koivunen et al., Cell Biol., 124:373-80, 1994 and as disclosed at p. 22-23 of the specification.

Smith & Scott, and Koivunen teach is synthesis of phage display libraries using methodology including the fusion of randomly synthesized peptides to the gIII protein and the vector fuse 5 for the purpose of screening molecules. Thus as the specification and references disclose peptides generated via identical techniques the randomly synthesized peptides are expected by the skilled artisan to encompass the instantly claimed peptides. Further as the fuse 5 vector teaches the insertion technique it would be prima facie to the artisan that any randomly synthesized peptide could also be isolated as a peptide consisting of the inserted randomly synthesized sequence. Thus, as applicants have argued that the peptides of applicants claims are of the fusion variety using the methodology of Smith and Scott and Koivunen, applicants arguments presented 2-26-01 and the specification indicate that the peptides were in the public domain prior to applicants invention.

Status of Claims

8. No claims are allowed.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry of a general nature or relating to the status of this general application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Papers relating to this application may be submitted to Technology Center 1600, Group 1640 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). Should applicant wish to FAX a response, the current FAX number for Group 1600 is (703) 308-4242.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharon L. Turner, Ph.D. whose telephone number is (703) 308-0056. The examiner can normally be reached on Monday-Friday from 8:00 AM to 4:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Kunz can be reached at (703) 308-4623.

Sharon L. Turner, Ph.D.
May 21, 2001

CHRISTINE J. SAOUD
PRIMARY EXAMINER
Christine J. Saoud